# BRIEFER ARTICLES

## CROSS-CONJUGATION IN SPIROGYRA WEBERI

(WITH ONE FIGURE)

The writer has reported[1] the occurrence of cross-conjugation in *Spirogyra inflata* (Vauch.) Rabh., which was found in material collected in April 1915. In the spring of 1917 another species was collected in cross-conjugation. Glycerine mounts were made and examined. The phenomenon in this case is very similar to that in *S. inflata*. Table I shows the dimensions of *S. inflata* and *S. Weberi* as given by WOLLE and DETONI, also the material collected by the writer in 1915 (which has been identified as *S. inflata*), and that collected in 1917 which corresponds sufficiently with *S. Weberi* to be identified with that species.

TABLE I

| | ZYGOTE | | ZYGOTE CELL | | VEGETATIVE CELL | |
|---|---|---|---|---|---|---|
| | Length | Width | Length | Width | Length | Width |
| S. inflata*..... | 2×W | 30–36 | Greatly inflated | | 42–144 | 14–18 |
| 1915 coll.†..... | 45 | 25.9 | 85 | 34 | 99.9 | 15.6 |
| S. Weberi.*..... | 2×W | 26–30 | Slightly inflated | | 100–350 | 18–25 |
| 1917 coll.†..... | 62.9 | 29.6 | 87.2 | 35.2 | 101 | 25.9 |

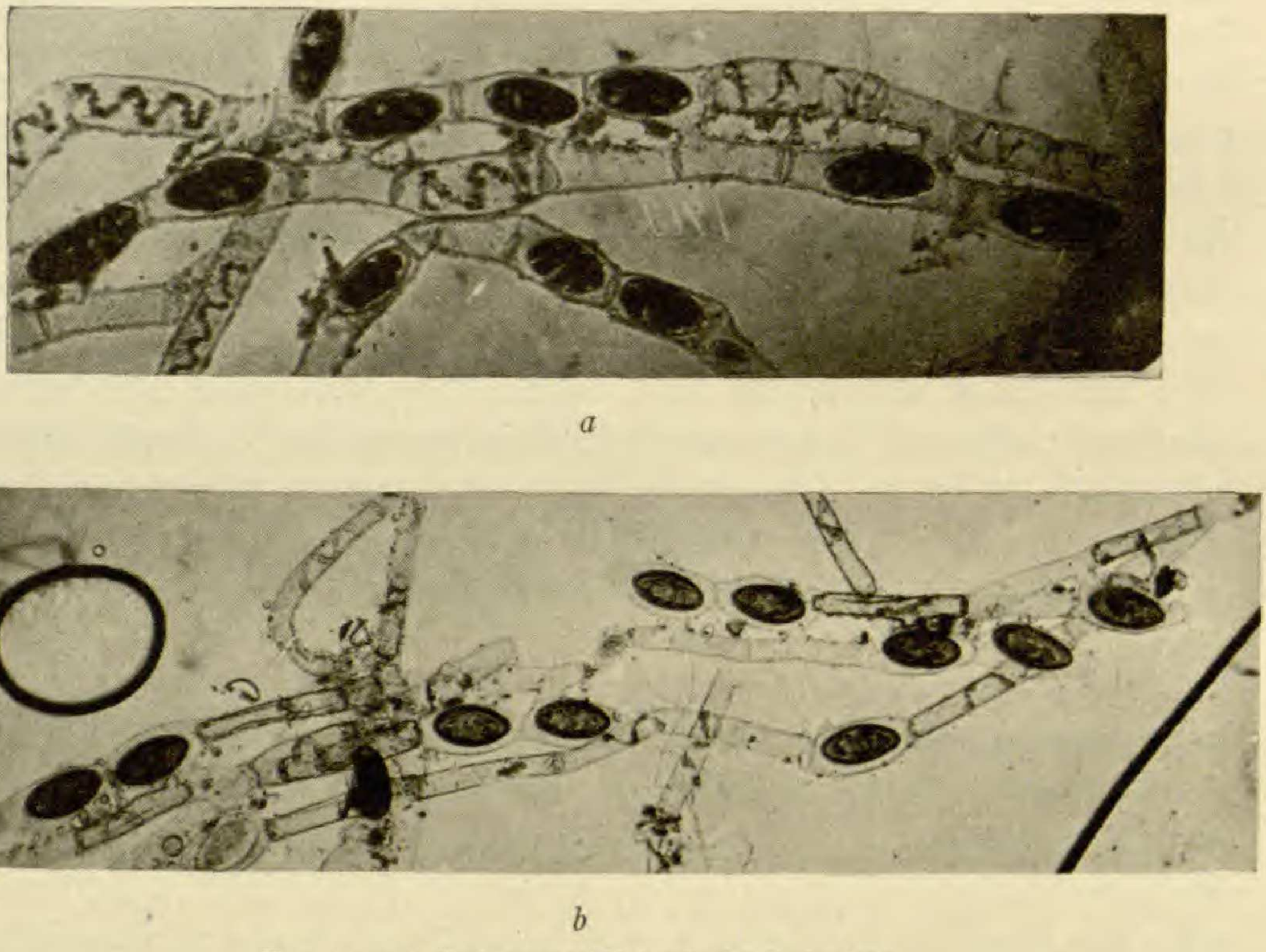
* Dimensions according to WOLLE and DETONI.

† Average of 15 measurements.

Since there is a possibility of considerable variation in the size of a plant owing to various causes, such as food, light, heat, etc., it is probably well to add the fact of the great difference in the inflation of the zygote cells. WOLLE says that the zygote cell of *S. inflata* is greatly inflated, while *S. Weberi* is but slightly inflated. If we establish a ratio by dividing the diameter of the zygote cell ($d$) by the diameter of the vegetative cell ($d'$), $\frac{d}{d'}$, and apply it to the material collected in 1915, we get $\frac{d}{d'}=2.205$; while applied to the 1917 material we get $\frac{d}{d'}=1.359$. This

[1] CUNNINGHAM, BERT, Sexuality of filament of *Spirogyra*. BOT. GAZ. **63**:486–500. 1917.

shows a remarkable difference between the two collections, and taken with the facts shown in the table leads the writer to identify the 1917 collection as *S. Weberi* Keutz.



*a*

*b*

FIG. 1.—*a*, *Spirogyra Weberi; b*, *S. inflata*

These differences are shown in fig. 1, from preparations made at the same magnification, in the same mounting media of identical concentration.—BERT CUNNINGHAM, *Trinity College, Durham, N.C.*

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## AN ENDEMIC BEGONIA OF HAWAII

The flora of the Hawaiian Archipelago exhibits many pronounced peculiarities. Among these the high endemism, nearly 85 per cent of the spermatophytes, is noteworthy and unexcelled. One of the specific instances of endemism, very interesting to the student of plant distribution, is the solitary begonia, *Hillebrandia sandwicensis* Oliver. This lone species, sharply precinctive in its zonal range, is undoubtedly a vestige of an ancient flora more primitive than that which the islands now possess. Its presence in our flora constitutes one of the many evidences, floral, faunal, and geological, that at one time in the history of the